

Michigan Clean Diesel Program: Frequently Asked Questions (FAQ)

1. Is there an early retirement requirement this year?

No. To be eligible for replacement, the vehicle, engine, or equipment must be fully operational and in current, regular service.

2. What types of vehicles, engines, and equipment are eligible?

Eligible heavy-duty diesel emission source types include school buses, Class 5-8 highway vehicles, marine engines, locomotives, and nonroad engines, equipment, or vehicles (used in construction, cargo handling, agriculture, mining, or energy production). Vehicles, engines, and equipment targeted for upgrades must meet all applicable eligibility criteria, as defined in the Request for Approval (RFA).

3. When replacing an existing diesel vehicle with a zero-emissions vehicle (ZEV), we might not want to totally scrap the diesel vehicle during the first winter of the ZEV operation (i.e., December-April 2020). So, if we put the ZEV into service in mid-2020, can we keep the existing diesel vehicle just parked for back-up purposes through the winter without disabling it while using the ZEV, as long as we disable the diesel vehicle by August 31, 2021?

The vehicle, equipment, and/or engine being replaced must be scrapped or rendered permanently disabled within ninety (90) days of being replaced.

4. Are we eligible to apply if we have received Diesel Emissions Reduction Act (DERA), Michigan Clean Diesel, or Michigan Fuel Transformation Program funding through another opportunity?

Yes, you may apply for funding under this funding opportunity. Participation in one program does not preclude you from participating in others; however, an applicant may not accept funding from multiple programs for the same vehicle.

5. For engine replacements, do eligible costs include items required in addition to the new engine (such as gears, controls, and shipyard costs)?

Yes. Charges for equipment and parts on engine replacement projects are eligible for funding if they are included in the certified engine configuration and/or are required to ensure the effective installation and functioning of the new technology, but are not part of typical vehicle or equipment maintenance or repair. The eligible cost of engine replacement includes the cost of modifications, attachments, accessories, or auxiliary apparatus necessary to make the equipment functional, including related labor expenses. Examples of ineligible engine replacement costs include, but are not limited to tires, cabs, axles, paint, brakes, and mufflers. Shipyard costs are also eligible and should be included in the "other" cost category in applications.

6. Will this grant cover 100 percent of the cost of an engine replacement in a truck?

No. Michigan will fund: up to 40 percent of the cost (labor and equipment) of replacing a diesel engine with a diesel or alternative fueled engine (including hybrids) certified to Environmental Protection Agency (EPA) emission standards; up to 50 percent of the cost of replacing diesel engine with an engine certified to meet the California Air Resource Board (CARB)'s Optional Low-NOx Standards; up to 60 percent of the cost (labor and equipment) of replacing a diesel engine with a zero tailpipe emissions power source (grid, battery, or fuel cell).

7. May I replace a nonroad diesel compression ignition engine with a newer diesel compression ignition engine under this grant?

Yes, you may replace an eligible non-road diesel compression ignition engine with an eligible new compression ignition engine, spark ignition engine, or zero tailpipe emission power source. See the Request for Proposals (RFP) for non-road engine funding restrictions.

8. Is a Tier 2 marine engine eligible for replacement with a Tier 4 marine engine?

Yes.

9. What types of replacement projects are eligible?

Replacement projects can include the replacement of diesel vehicles/equipment with new, cleaner diesel, hybrid, or alternative fuel vehicles/equipment such as compressed natural gas (CNG), liquified natural gas (LNG) or propane, or zero tailpipe emissions technologies such as battery or fuel cell where applicable.

10. For highway vehicle replacements, what are the engine requirements for the replacement vehicle?

Replacement vehicles must be powered by one of the following:

1. A 2016 model year or newer engine certified to EPA emission standards. Highway engine emission standards are on EPA's website at: [EPA.gov/emission-standards-referenceguide/epa-emission-standards-heavy-duty-highway-engines-and-vehicles](https://www.epa.gov/emission-standards-referenceguide/epa-emission-standards-heavy-duty-highway-engines-and-vehicles).
2. A 2016 model year or newer engine certified to meet CARB's Optional Low-NOx Standards of 0.1 grams per brake horsepower-hour (g/bhp-hr), 0.05 g/bhp-hr, or 0.02 g/bhp-hr oxides of Nitrogen (NOx). Engines certified to CARB's Optional Low NOx Standards may be found by searching CARB's Executive Orders for Heavy-duty Engines and Vehicles, found at: arb.ca.gov/msprog/onroad/cert/cert.php.
3. A new, zero tailpipe emissions power source.

11. Must a fleet replace its oldest eligible vehicles before its newer eligible vehicles?

No, any vehicle meeting the eligibility requirements outlined in the RFP is eligible for funding.

12. Is replacing a 2007-2009 engine model year vehicle with a 2016 or newer engine model year vehicle eligible for funding?

Yes, A vehicle with engine model years 2007-2009 is eligible for replacement with a Vehicle with 2016 or newer engine model year.

13. Are transit buses eligible for hydrogen fuel cell powered bus replacement?

Yes. Hydrogen fuel cell vehicles and equipment are eligible as replacements for eligible transit buses, shuttle buses, drayage trucks, terminal tractors/yard hostlers, stationary generators, and forklifts.

14. What percent of EV charging infrastructure will be covered if the infrastructure is combined with vehicles?

Up to 45 percent of the cost of an eligible zero tailpipe emissions vehicle or piece of equipment. Eligible replacement costs include, but are not limited to, the purchase and installation of electrical infrastructure or equipment to enable the use of power.

15. Are electric charging stations eligible for funding?

Electric vehicle charging infrastructure is not eligible as a standalone project but is eligible as part of an all-electric engine or vehicle replacement project which requires vehicle charging capability for the successful operation of the new equipment.

16. Could a 2010 or newer highway diesel vehicle be replaced with a CNG or LNG powered vehicle?

2010 and newer highway diesel vehicles may be replaced a vehicle powered by a 2016 model year or newer engine certified to meet the CARB's Optional Low-NOx Standards of 0.1 g/bhp-hr, 0.05 g/bhp-hr, or 0.02 g/bhp-hr NOx. Engines certified to CARB's Optional Low NOx Standards may be found by searching CARB's Executive Orders for Heavy-duty Engines and Vehicles, found at: Arb.Ca.gov/msprog/onroad/cert/cert.php. Many of these engines are CNG/LNG engines. Additionally, a 2010 or newer highway diesel vehicle may be replaced with a new, zero tailpipe emissions vehicle.

17. What replacement percentages are available for engines and vehicles?

	Replacement percent up to:
Engine Replacement – Diesel or Alternative Fuel	40 percent
Engine Replacement – Low NOx	50 percent
Engine Replacement – Zero Emission	60 percent
Vehicle/Equipment Replacement – Diesel or Alternative Fuel	25 percent
Vehicle/Equipment Replacement – Low NOx	35 percent
Vehicle/Equipment Replacement – Zero Emission	45 percent
Vehicle Replacement -Drayage	50 percent

18. How do I calculate emissions reduction and cost effectiveness of the following?

- Lifetime NOx reduced
- Lifetime particulate matter (PM) 2.5 reduced
- Lifetime total project cost effectiveness for PM2.5 and NOx
- Lifetime capital cost effectiveness for PM2.5 and NOx

Follow these steps and the answer to all of these will be in your printout. See below.

Use the same vehicle/engine data you provided for the applicant fleet description.

a. Emissions reduction – NOx & PM 2.5

- To estimate the anticipated emissions reductions from your project, use the Diesel Emissions Quantifier (DEQ) found at [Cfpub.epa.gov/quantifier/index.cfm?action=main.home](https://cfpub.epa.gov/quantifier/index.cfm?action=main.home)
- You can group similar entries together to minimize the number of DEQ runs required (model year, vehicle miles traveled, idling hours, usage rate, and horsepower).
- “Register a New Account” and log in to use the DEQ so that you will have the ability to save scenario information and retrieve it in the future.
- To calculate carbon dioxide (CO2) emissions reductions, input an amount for annual diesel gallons reduced (per engine), annual idling hours reduced (per vehicle), or annual hoteling hours reduced (per vehicle) when inputting technology information for the vehicle group.

b. Cost Effectiveness for Most Project Types

- To estimate total cost effectiveness for the project, enter estimated total costs in the total project costs field on the create new project page.
- Total project costs reflect all costs related to this project, including the Michigan Department of Environment, Great Lakes, and Energy (EGLE)'s share, and any voluntary and mandatory cost shares. Total project costs entered into the DEQ should match the total project costs reflected in the budget.
- To estimate capital cost effectiveness for the project, enter the estimated upgrade cost per unit on the add an upgrade page in the DEQ. Be sure to enter costs for every upgrade/vehicle in your project or else the results will be skewed.
- Enter the lifetime capital cost effectiveness for NO_x and PM_{2.5}, and the total project cost effectiveness for NO_x and PM_{2.5} in "Outputs and Outcomes," of your work plan.
- For further instruction on using the DEQ, please refer to cfpub.epa.gov/quantifier/index.cfm?action=main.home. Additional assistance is available by calling the Clean Diesel Helpline at 877-NCDC-FACTS (877-623-2322) or emailing DEQhelp@epa.gov.

After running the DEQ, results may be downloaded as a spreadsheet showing DEQ results and inputs. Applicants should include a printout of their DEQ results spreadsheet showing DEQ results and inputs as an attachment to their application.

Emission Results and Health Benefits for Project: Sample Project

Emission Results

Health Benefits

Emission Results ?

Here are the combined results for all groups and upgrades entered for your project.¹

<i>Annual Results (short tons)²</i>	NO_x	PM2.5	HC	CO	CO₂	Fuel³
Baseline for Upgraded Vehicles	7.978	0.636	1.053	3.885	1,300.5	115,600
Amount Reduced After Upgrades	2.841	0.469	0.808	2.667	76.5	6,800
Percent Reduced After Upgrades	35.6%	73.7%	76.7%	68.6%	5.9%	5.9%

<i>Lifetime Results (short tons)²</i>						
Baseline for Upgraded Vehicles	46.414	3.660	6.085	22.447	7,650.0	680,000
Amount Reduced After Upgrades	15.795	2.660	4.637	15.223	612.0	54,400
Percent Reduced After Upgrades	34.0%	72.7%	76.2%	67.8%	8.0%	8.0%

<i>Lifetime Cost Effectiveness (\$/short ton reduced)</i>						
Capital Cost Effectiveness ⁴ (unit & labor costs only)	\$272,237	\$1,616,781	\$927,230	\$282,468	\$7,026	
Total Cost Effectiveness ⁴ (includes all project costs)	\$200,572	\$1,191,174	\$683,142	\$208,110	\$5,177	

¹ Emissions from the electrical grid are not included in the results.
² 1 short ton = 2000 lbs.
³ In gallons; fuels other than ULSD have been converted to ULSD-equivalent gallons.
⁴ Cost effectiveness estimates include only the costs which you have entered.

<i>Remaining Life</i>	doc+ccv: School Bus School Buses	6 years
	dpfs: School Bus School Buses	6 years
	vehicles: School Bus School Buses	6 years
	SB subgrant: School Bus School Buses	6 years
	rebates: School Bus School Buses	4 years
	electric: School Bus School Buses	8 years

Downloading Spreadsheets

- Results may be downloaded as a:
- [Spreadsheet](#) showing DEQ results and your inputs (click on 'yes' if you get an error message).